Assignment No 10

/\*

In any language program mostly syntax error occurs due to unbalancing delimiter such as

(),{},[]. Write C++ program using stack to check whether given expression is well parenthesized or

not.

\*/

#include <iostream>

using namespace std;

#define size 10

class stackexp

{

int top;

char stk[size];

public:

stackexp()

{

top=-1;

}

void push(char);

char pop();

int isfull();

int isempty();

};

void stackexp::push(char x)

{

top=top+1;

stk[top]=x;

}

char stackexp::pop()

{

char s;

s=stk[top];

top=top-1;

return s;

}

int stackexp::isfull()

{

if(top==size)

return 1;

else

return 0;

}

int stackexp::isempty()

{

if(top==-1)

return 1;

else

return 0;

}

int main()

{

stackexp s1;

char exp[20],ch;

int i=0;

cout << "\n\t!! Parenthesis Checker..!!!!" << endl; // prints !!!Hello World!!!

cout<<"\nEnter the expression to check whether it is in well form or not : ";

cin>>exp;

if((exp[0]==')')||(exp[0]==']')||(exp[0]=='}'))

{

cout<<"\n Invalid Expression.....\n";

return 0;

}

else

{

while(exp[i]!='\0')

{

ch=exp[i];

switch(ch)

{

case '(':s1.push(ch);break;

case '[':s1.push(ch);break;

case '{':s1.push(ch);break;

case ')':s1.pop();break;

case ']':s1.pop();break;

case '}':s1.pop();break;

}

i=i+1;

}

}

if(s1.isempty())

{

cout<<"\nExpression is well parenthesised...\n";

}

else

{

cout<<"\nSorry !!! Invalid Expression or not in well parenthesized....\n";

}

return 0;

}

Output :

!! Parenthesis Checker..!!!!

Enter the expression to check whether it is in well form or not : {[()]}

Expression is well parenthesised...